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South Florida microfungi: *Veramycella bispora*, a new palmicolous anamorphic genus and species, with some new records for the continental USA

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Abstract — A new anamorphic genus *Veramycella*, with *V. bispora* as the type species, is described and illustrated from rachides of dead leaves of *Sabal palmetto* in southeastern Florida, USA. The genus is characterized by having 3-distoseptate, polymorphic conidia produced in simple, acropetal chains of two, and polyblastic, terminal or intercalary, sympodially proliferating conidiogenous cells bearing widely spaced, flattened, non-protuberant, unthickened, not darkened conidiogenous loci, disposed in conidiophores with enteroblastic, percurrent regenerative proliferations. It is compared with morphologically similar anamorphic genera and species having sympodial conidiogenesis and catenate conidia. Thirteen other hyphomycetes are recorded for the first time for the continental United States. A new combination *Rhexoacrodictys martinii*, is proposed and discussed.

Key words — *Anungitopsis*, *Junewangia*, palm fungi, *Veramyces*

Introduction

Continuing our studies of saprobic microfungi occurring in natural locations of southeastern Florida (Delgado 2008a, b), several interesting hyphomycetes (anamorphic fungi) were collected on plant debris. A peculiar anamorph with distoseptate conidia in chains of two and sympodially proliferating conidiogenous cells was found among them, growing on dead leaves of *Sabal palmetto*. When first examined, the fungus was tentatively considered as a new species of *Veramyces* Matsush. (Matsushima 1993; non *Veramyces* Subram., nom. illegit.), a genus so far been monotypic. However, after careful examination, the Florida fungus differs from *Veramyces* in certain essential respects, and it cannot be accommodated in any other previously known anamorphic genus. Therefore, it is described here in a new monotypic genus *Veramycella*. The type specimen and other specimen examined are deposited in the Herbarium of

the U.S. National Fungus Collections (BPI). Thirteen other hyphomycetes are newly recorded for the continental USA, four of them previously collected or described from overseas American territories. Short descriptions and comments about their morphology, taxonomy and geographical distribution are provided for each taxon. A new combination *Rhexoacrodictys martinii*, is proposed and discussed based on a specimen collected in the surveyed areas.

Taxonomic description

Veramycella G. Delgado, **anam. gen. nov.**

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Ad fungus anamorphicus, hyphomycetes, pertinens. Coloniae in substrato naturali pilosae, effusae. Mycelium plerumque in substrato immersum, ex hyphis septatis, ramosis, laevibus, brunneae compositum. Stromata saepe praesentia. Conidiophora macronemata, mononemata, singula vel aggregata, erecta, simplicia, recta vel leviter flexuosa, cylindrica, laevia, brunnea, apicem versus pallidiora et tenuitunicata, regenerationibus percurrentia. Cellulae conidiogenae polyblasticae, in conidiophoris incorporatae, terminales vel intercalares, sympodiales. Loci conidiogeni applanati, non protuberantes, non incrassati, non fuscati, apicales vel laterales. Conidiorum secessio schizolytica. Conidia holoblastica, acropleurogena, catenata, in catenis simplicibus, acropetis formata, polymorphica, mitrata, fusiformia, clavata vel pyriformia, distoseptata, subhyalina vel pallide olivacea, laevia. Teleomorphosis ignota.

Species typica—*Veramycella bispora* sp. nov.

Anamorphic fungi, hyphomycetes. Colonies on natural substratum hairy, effuse. Mycelium predominantly immersed in the substrate, composed of septate, branched, smooth-walled, brown hyphae. Stromata usually present. Conidiophores macronematous, mononematous, single or in groups, erect, unbranched, straight or slightly flexuous, cylindrical, smooth-walled, brown, paler and thinner-walled toward the apex, regenerating percurrently. Conidiogenous cells polyblastic, integrated, terminal and intercalary, sympodial. Conidiogenous loci flattened, non-protuberant, unthickened, not darkened, apical and lateral. Conidial secession schizolytic. Conidia holoblastic, acropleurogenous, catenate, in simple, acropetal chains, polymorphic, mitrate, fusiform, clavate, pyriform, distoseptate, subhyaline to pale olivaceous, smooth-walled. Teleomorph unknown.

Etymology—*Veramyces*, a generic name of hyphomycetes; Latin, *-ella*, a suffix meaning diminutive.

Veramycella bispora G. Delgado, **anam. sp. nov.** Figs. 1–12

MycoBank MB512670

Ad fungus anamorphicus, hyphomycetes, pertinens. Coloniae in substrato naturali pilosae, effusae, brunneae. Mycelium plerumque in substrato immersum, ex hyphis septatis, ramosis, laevibus, brunneis, 1.5–2 µm diam. compositum. Stromata absentia ad praesentia, non erumpentia, subrotundata vel irregularis, atrobrunneae vel nigrescentia. Conidiophora

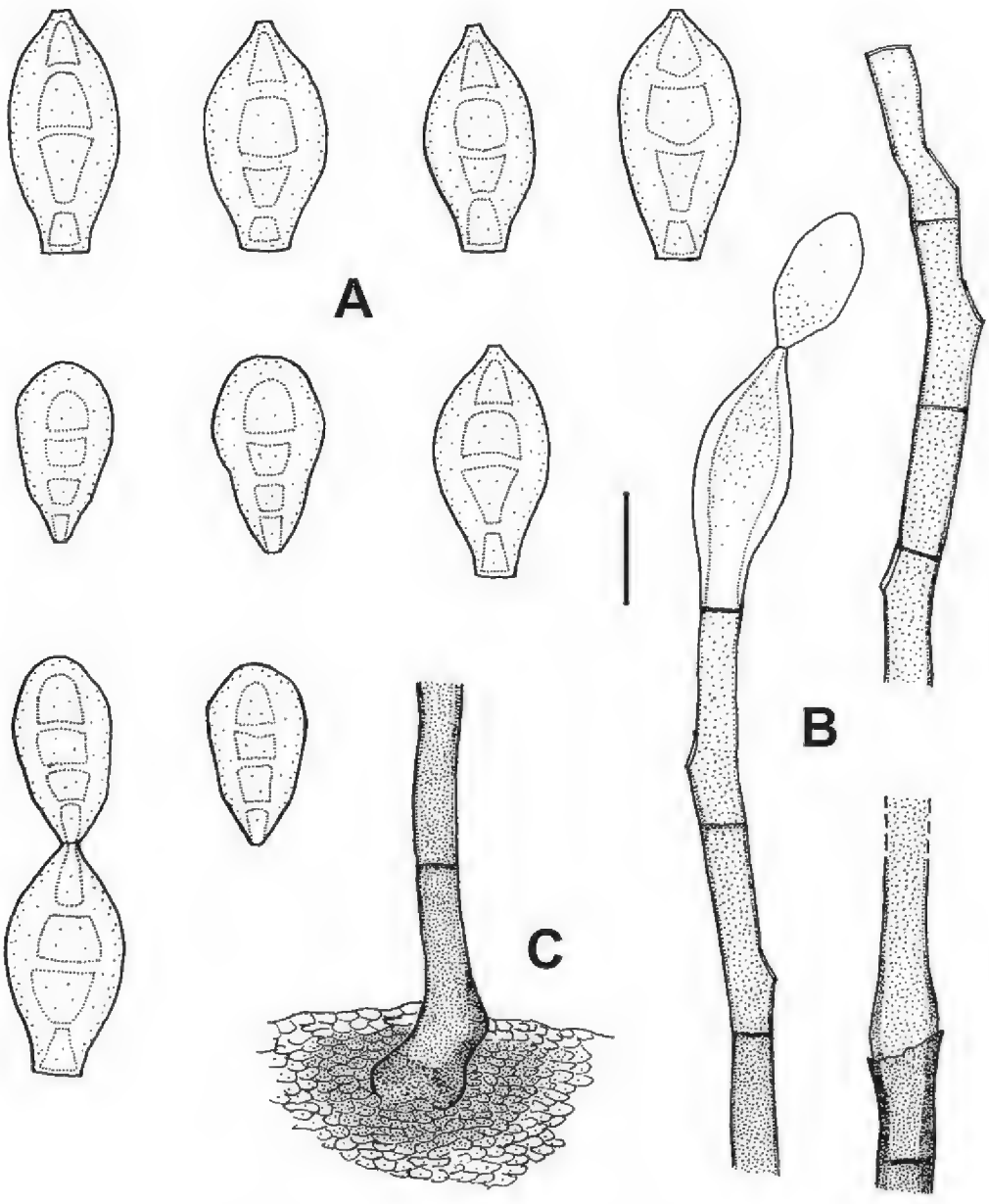


Fig. 1. *Veramycella bispora*, from holotype (BPI 878843).
A. Conidia. B. Conidiophores, conidiogenous cells and developing conidia.
C. Detail of the stroma. Scale bar: 10 µm.

macronemata, mononemata, singula vel aggregata, erecta, simplicia, recta vel leviter flexuosa, cylindrica, 3–12-septata, laevia, brunnea, apicem versus subhyalina vel pallide brunnea et tenuitunicata, usque ad 260 µm longa, 3–4 µm crassa, ad basi inflata, 5–10 µm crassa, cum 1–3 proliferationibus percurrentibus enteroblasticis. Cellulae conidiogenae polyblasticae, in conidiophoris incorporatae, primo terminales, tarde terminales vel intercalares, cylindricae, recta vel leviter geniculatae, sympodiales. Loci conidiogeni late dispositi, applanati, non protuberantes, non incrasati, non fuscati, apicales vel laterales. Conidiorum secessio schizolytica. Conidia holoblastica, acropleurogena, polymorphica, sicca, catenata, in catenis simplicibus, acropetis, brevis formata, ex 2 conidiis compositis, conidia primaria mitrata usque ad late fusiformia, ad apicem conico-truncata, ad basim truncata, conidia secundaria clavata usque ad pyriformia, ad apicem rotundata, ad basim conico-truncata, 3-distoseptata, subhyalina vel pallide olivacea, laevia, (13–)15–21(–24) × (6.5–)7–9(–9.5) µm. Teleomorphosis ignota.

Holotype—UNITED STATES. Florida: Miami-Dade Co., North Miami, Enchanted Forest Elaine Gordon Park, on rachides of dead leaves of *Sabal palmetto* (Walter) Lodd. ex Schult., IX.22.2007, coll. G. Delgado (BPI 878843).

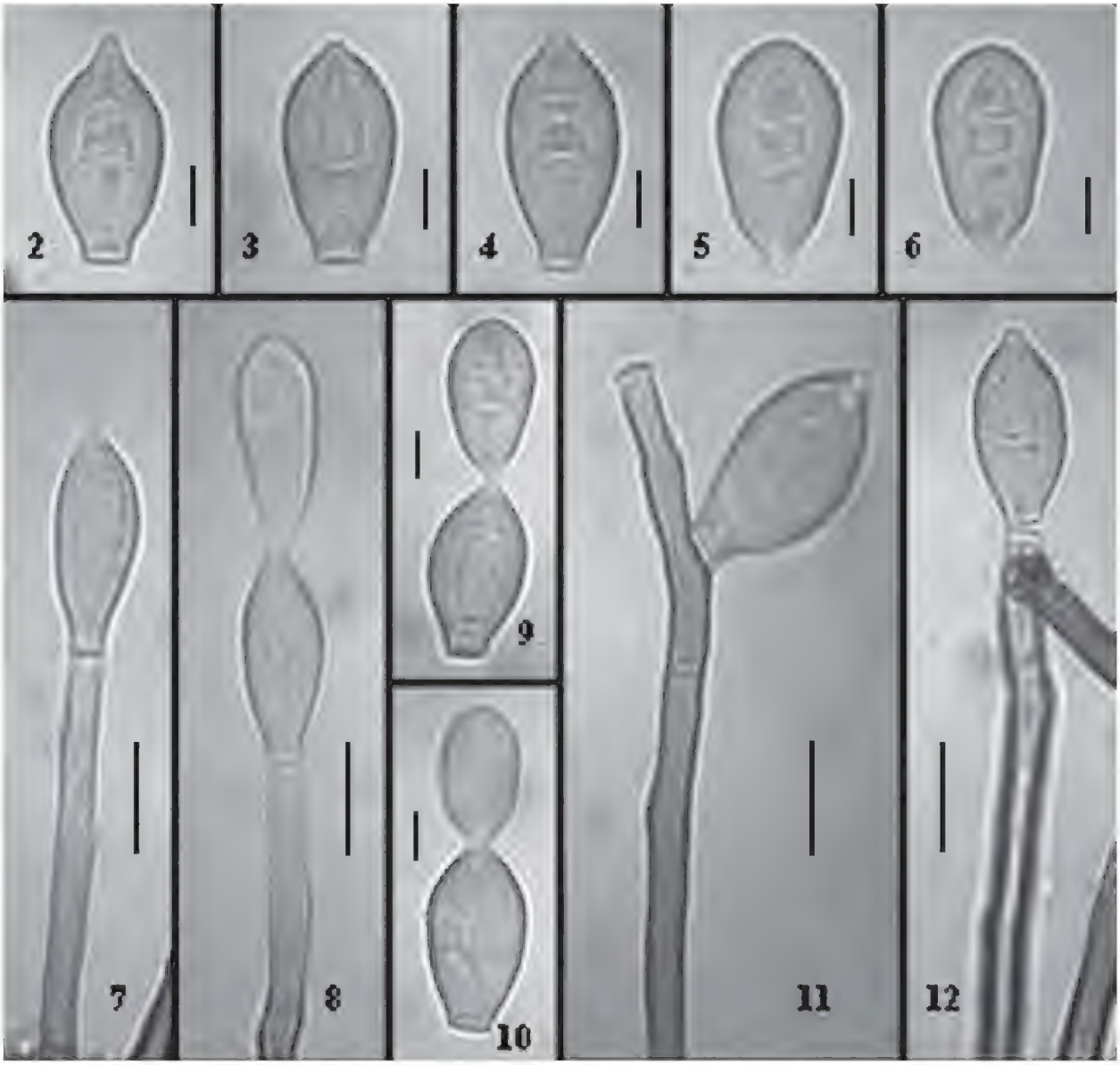
Etymology—Latin, *bispora*, referring to the two-spored conidial chains found in this species.

Colonies on natural substratum hairy, effuse, brown. Mycelium predominantly immersed in the substrate, composed of septate, branched, smooth-walled, brown hyphae, 1.5–2 µm wide. Stromata usually present, often well developed, flattened, subsphaerical to irregular, dark brown to blackish brown. Conidiophores macronematous, mononematous, single or in groups, arising from stromata or not, erect, unbranched, straight or flexuous, cylindrical, 3–12-septate, smooth-walled, brown, subhyaline to pale brown and thinner-walled toward the apex, up to 260 µm long, 3–4 µm wide, inflate at the base, 5–10 µm wide, often with one to three frequently nodose, enteroblastic percurrent regenerative proliferations. Conidiogenous cells polyblastic, integrated, terminal becoming intercalary after apical growth, cylindrical, straight or slightly geniculate, sympodial. Conidiogenous loci widely spaced, flattened, non-protuberant, unthickened, not darkened, apical and lateral. Conidial secession schizolytic. Conidia holoblastic, acropleurogenous, polymorphic, dry, catenate, in short, simple, acropetal chains of two: the first conidium mitrate to broadly fusiform, apex conico-truncate, base truncate; the second (apical) conidium developing blastically from the apex of the first conidium, clavate to pyriform, rounded at the apex, tapered to a conico-truncate base; 3-distoseptate, subhyaline to pale olivaceous, smooth-walled, (13–)15–21(–24) × (6.5–)7–9(–9.5) µm. Teleomorph unknown.

Other specimen examined—UNITED STATES. Florida: Miami-Dade Co., North Miami, Enchanted Forest Elaine Gordon Park, on rachides of dead leaves of *Sabal palmetto* (Walter) Lodd. ex Schult., VI.30.2007, coll. G. Delgado (BPI 878836).

Discussion

Veramycella bispora possesses a unique combination of features that readily distinguishes it from other genera and species of hyphomycetes with catenate conidia and polyblastic, sympodial conidiogenesis. These include the presence of 3-distoseptate, subhyaline to pale olivaceous, polymorphic conidia in simple, acropetal chains of two, the first conidium mitrate to broadly fusiform in shape, the second conidium produced blastically from the tip of the first conidium and clavate to pyriform. Conidiophores regenerate percurrently 1 to 3 times, with frequently nodose enteroblastic proliferations. The upper, fertile portion bears holoblastic, sympodially proliferating conidiogenous cells with widely spaced, flattened, non-protuberant, unthickened, not darkened conidiogenous loci, laterally but also apically situated when the conidiogenous cell is terminal.



Figs. 2–12. *Veramycella bispora*, from holotype (BPI 878843). 2–6. Conidia. 7–8, 11–12. Conidiophores, conidiogenous cells and conidia. 9–10. Conidia in chains. Scale bars: 2–6, 9–10 = 5 µm; 7–8, 11–12 = 10 µm.

Veramycella is closely similar to the monotypic genus *Veramyces* (Matsushima 1993). *Veramyces manuensis* Matsush., the type species, is known from a single specimen collected on a rotten petiole of an unidentified palm in Peru. Both genera share in common the presence of distoseptate, phragmosporous, polymorphic, pale-colored conidia forming unbranched, acropetal chains and polyblastic conidiogenous cells that proliferate sympodially. However, conidiophores in *Veramyces* are mainly simple but sometimes sparingly branched, non straight, without percurrent proliferations, and the conidiogenous cells bear multiple protuberant, conico-truncate denticles, closely arranged or distantly spaced in an irregular fashion. The conidia of *V. manuensis* are 0–5-distoseptate and disposed in chains of three to five, the first conidia cylindrical in shape, the secondary conidia fusiform. The combination of conidiophores with enteroblastic, percurrent regenerative proliferations and sympodial

conidiogenous cells associated with flattened, not denticulate conidiogenous loci clearly separate *Veramycella* from *Veramyces*.

Some members of the genus *Anungitopsis* R.F. Castañeda & W.B. Kendr. (Castañeda & Kendrick 1990, Castañeda et al. 1996) morphologically resemble *Veramycella bispora*. They share a similar conidiogenesis and comparable catenate conidia developed in short, acropetal, unbranched chains. Crous et al. (2007) recently transferred *A. amoena* R.F. Castañeda & Dugan, and *A. intermedia* Crous & W.B. Kendr. to *Fusicladium* Bonord. based on their morphological and phylogenetical affinities with *Venturiaceae* anamorphs. Among the remaining accepted species of *Anungitopsis*, *A. dimorphospora* R.F. Castañeda & W.B. Kendr. (Castañeda & Kendrick 1991) is the most similar to *V. bispora*, particularly in having terminal, later intercalary conidiogenous cells with many flattened conidiogenous loci, and similarly shaped, polymorphic conidia in chains of two. However, *A. dimorphospora* has 3, rarely 4-euseptate conidia, with brown central cells, and subhyaline to colourless basal and apical cells.

The monotypic genus *Chikaneea* B. Sutton (Sutton 1973a), typified by *C. holleroniae* B. Sutton, also resemble *V. bispora* in conidial ontogeny and catenation, but the former has hyaline conidiophores, pale brown toward the base, with terminal conidiogenous cells and hyaline, cymbiform to long obovoid, guttulate, mostly 3 but occasionally 1–7-euseptate conidia disposed in fragmenting chains of at least two, where the lower conidium is invariably longer and with more septa that the upper.

Pleurotheciopsis B. Sutton (Sutton 1973b) also shows some similarity to *Veramycella* in having sympodial conidiogenous cells disposed on conidiophores with percurrent proliferations and acropetal, unbranched chains of conidia. However, *Pleurotheciopsis* differs in having euseptate conidia and denticulate conidiogenous loci, with short, cylindrical, unthickened denticles up to 1 µm diam., apical and closely arranged on the conidiogenous cell, but also inconspicuous and sloping in certain species such as *P. sylvestris* R.F. Castañeda & Iturr. or *P. tropicalis* R.F. Castañeda & M. Calduch, giving a rachiform appearance to the conidiogenous cell (Castañeda & Iturriaga 1999, Castañeda et al. 2001).

Another fungus, *Brevicatenospora enteroproliferata* R.F. Castañeda et al. (Castañeda et al. 2006), is comparable with *V. bispora* in having catenate, polymorphic conidia in chains of two, with primary and secondary conidia superficially resembling those of the latter. However, the conidia of *B. enteroproliferata* are one-celled, brown to red-brown, the primary conidia clavate, subclavate to slightly spathulate, and the secondary conidia obovoid, pyriform to subglobose in shape. They also differ in conidiogenesis, as *B. enteroproliferata* possess unilocal, annellidic conidiogenous cells with 10–28 enteroblastic, percurrent proliferations.

The distoseptate, subhyaline to pale olivaceous conidia of *V. bispora* are slightly reminiscent of those of some species of *Sporidesmiella* P.M. Kirk (Kirk 1982, Yanna et al. 2001, Wu & Zhuang 2005). Additionally, a few *Sporidesmiella* species, *S. aspera* Kuthub. & Nawawi, *S. brachysporioides* T.Y. Zhang & W.B. Kendr., *S. hyalosperma* var. *novae-zelandiae* (S. Hughes) P.M. Kirk, *S. pachyanthicola* W.B. Kendr. & R.F. Castañeda and *S. parva* var. *palauensis* Matsush., have rare or consistently sympodially proliferating conidiogenous cells (Kuthubutheen & Nawawi 1993, Zhang et al. 1983). However, *V. bispora* is not considered congeneric with the species mentioned above because their conidia are solitary, never in chains, and the addition of such a species having catenate conidia would unnecessarily broaden the already heterogeneous concept of *Sporidesmiella*.

Other hyphomycetes newly recorded from the continental USA

Brachyconidiella monilispora R.F. Castañeda & W.B. Kendr., University of Waterloo Biol. Ser. 33: 14, 1990. FIGS. 13–15

Conidiomata synnematal, scattered, erect, straight or flexuous, brown to olivaceous-brown, up to 190 µm tall, 11–44 µm wide at base, conidial heads 32–71 µm diam. Individual conidiophores unbranched, smooth, pale brown to brown, 2–3 µm wide. Conidiogenous cells monoblastic, terminal, integrated, cylindrical or barrel-shaped, 4–6 × 2–3 µm. Conidia cheirosporous, penicilliform, repeatedly branched, 16–23 × 12–24 µm, with up to 18 branches, each one composed of a chain of 5–9, hyaline to pale-olivaceous, subglobose to globose cells, 2–2.5 µm diam, basal cells subglobose to barrel-shaped, 3–4.5 µm diam.

SPECIMENS EXAMINED: Florida, Monroe Co., KEY LARGO, Key Largo Hammock Botanical State Park, on unidentified dead leaf, IV. 8. 2007, coll. G. Delgado (BPI 878833); on rotten dead stems, VII.20.2007 (BPI 878835).

The monotypic genus *Brachyconidiella* was introduced by Castañeda & Kendrick (1990), with *B. monilispora* as the type species, to accommodate a distinctive hyphomycete collected on decaying leaves of *Coccoloba uvifera* L. from Cuba. The genus is characterized by cheirosporous, penicilliform, repeatedly branched conidia arising from monoblastic, cylindrical or barrel-shaped conidiogenous cells disposed in unbranched conidiophores aggregated in synnemata or sporodochia. A preliminary phylogenetic analysis of small subunit (18S) rDNA sequence data did not clearly resolve the taxonomic placement of *B. monilispora* within the *Dothideomycetidae* (Decock et al. 2004). The present collection is the second time this anamorph is recorded since its original description. The Florida specimen has synnemata larger than those of the holotype (70–120 µm tall, 11–18 µm wide at base). No sporodochial conidiomata were observed.

Chloridium obclaviforme J. Mena & Mercado, Acta Bot. Hungarica 33: 76, 1987. Fig. 16

Conidiophores straight or flexuous, brown, paler toward the apex, 64–134 × 2.5–4 µm, 5–7 µm wide at base, tapering toward the apex in a funnel-shaped collarette, 2–3.5 µm wide, with up to 4 percurrent proliferations. Conidia aggregated in slimy heads, formed on a single conidiogenous locus, narrowly obclavate, aseptate, hyaline or subhyaline, smooth-walled, tapering toward the apex, obconical and papillate at base, 9–15 × 2–2.5 µm.

Specimen examined: Florida, Miami Dade Co., North Miami, Enchanted Forest Elaine Gordon Park, on petiole of dead leaf of *Sabal palmetto* (Walter) Lodd. ex Schult., VI. 30. 2007, coll. G. Delgado (BPI 878841).

Mena & Mercado (1987) first described *Chloridium obclaviforme* on dead branches of *Spondias mombin* L. and dead stems of *Bambusa* sp. from Cuba. The fungus is distinct among species of *Chloridium* Link by its conidial morphology, with narrowly obclavate conidia, tapered to the apex, obconical and papillate at base. Previously known only from the type locality, this is the second record of its occurrence worldwide. The morphological features of the Florida collection agree well with the original description, but conidiophores are slightly shorter (25–120 µm long in holotype). Matsushima (1993) described *Chloridium obclavatum* Matsush. from rotten petiole of *Arecaceae* in Peru, a very similar species with obclavate conidia but having conidiophores up to 260 µm and slightly larger conidia (6–18 × 2.5–4 µm), probably representing the same taxon.

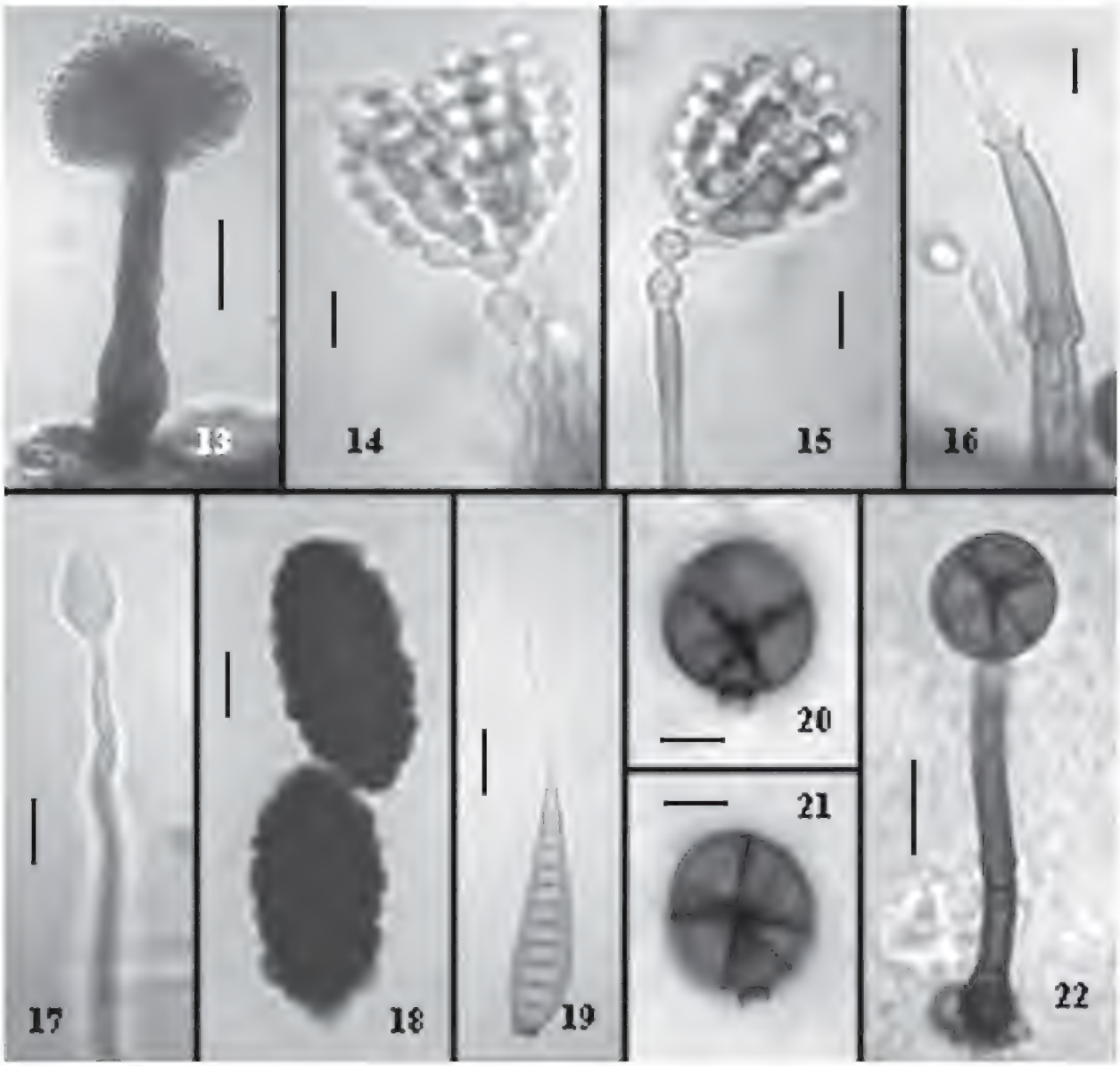
Coleodictyospora micronesica (Matsush.) Matsush., Matsush. Mycol. Mem. 5: 8, 1987. Fig. 30

≡ *Berkleasmium micronesicum* Matsush., Matsush. Mycol. Mem. 2: 2, 1981.

Colonies sporodochial, effuse. Conidia cylindro-ellipsoidal, muriform, smooth-walled, light brown, sometimes constricted in the middle, 29–40 × 15–18 µm, surrounded by a thick, hyaline, mucilaginous sheath.

Specimens examined: Florida, Monroe Co., Key Largo, John Pennekamp Coral Reef State Park, on dead spathe and fragment of dead leaf of unidentified palm, VII. 20. 2007, coll. G. Delgado (BPI 878822, 878827).

Coleodictyospora micronesica was originally described in the genus *Berkleasmium* Zobel on dead petiole of *Cocos nucifera* L. from Guam (Matsushima 1981). It has been recorded also on barks of *Prestoea montana* (Graham) G. Nicholson, *Tectona grandis* L. f. and an undetermined plant from Puerto Rico (Cantrell et al. 2006), and is newly recorded here for the continental USA. The Florida collection agrees fairly well with the type specimen in morphology and conidial dimensions (30–40 × 13–16 µm).



Figs. 13–15. *Brachyconidiella monilispora* (BPI 878835). 13. Synnema. 14–15. Conidiogenous cells and conidia. **16.** *Chloridium obclaviforme* (BPI 878841). Conidiophore showing collarette and conidia. **17–18.** *Gliomastix fusigera* (BPI 878844). 17. Young conidium attached to the conidiophore. 18. Conidia. **19.** *Ellisembia flagelliformis* (BPI 878843). Conidium. **20–22.** *Rhexoacrodictys martinii* (BPI 878843). 20–21. Conidia. 22. Conidiophore with attached conidium. Scale bars: 13 = 30 μm, 19, 22 = 10 μm; 14–18, 20-21 = 5 μm.

Ellisembia flagelliformis (Matsush.) W.P. Wu, in Wu & Zhuang, *Sporidesmium, Endophragmiella* and related genera from China: 127, 2005. Fig. 19

≡*Sporidesmium flagelliforme* Matsush., Icon. Microfung. Matsush. Lect.: 137, 1975.

Conidiophores cylindrical, straight or flexuous, brown, 22–65 × 4–6 μm, with 0–2 doliiform percurrent proliferations. Conidia obclavate or ellipsoidal, rostrate, straight or slightly curved, 11–16-distoseptate, golden brown to brown, paler toward the apex, 61–89 × 8–10 μm; apical appendage filiform, 0–1-septate, up to 71 μm, 1–2 μm wide; basal cell conico-truncate, darker, 3–4 μm wide.

Specimens examined: Florida, Miami Dade Co., North Miami, Enchanted Forest Elaine Gordon Park, on rachides and petiole of dead leaf of *Sabal palmetto* (Walter)

Lodd. ex Schult., VI. 30. 2007, coll. G. Delgado (BPI 878836, 878838 878841, 878842); IX.22.2007 (BPI 878843).

Wu & Zhuang (2005) recently transferred *Sporidesmium flagelliforme* to the genus *Ellisembia* Subram. (Subramanian 1992), based on the combination of distoseptate conidia and conidiophores with or without percurrent proliferations. It was originally isolated from forest soil in Japan (Matsushima 1975), and subsequently recorded on a dead trunk of *Euphorbia* sp. in Cuba (Holubová-Jechová & Mercado 1989), on dead culms of bamboo in China (Wu & Zhuang 2005), on decomposing leaves of *Caesalpinia echinata* Lam. in Brazil (Da Silva 2007) and now for the first time in USA.

Endophragmiella fallacia P.M. Kirk, Trans. Br. Mycol. Soc. 77: 286, 1981. FIGS. 26–27

Colonies effuse, hairy. Conidiophores cylindrical, erect, straight or slightly flexuous, brown, paler toward the apex, 127–243 × 4–6 µm, 7–10 µm at base. Conidiogenous cells integrated, terminal, cylindrical, smooth, with 2–4 percurrent proliferations. Conidia oblong to broadly ellipsoidal, (1–)2-euseptate, brown, the basal cell paler, smooth, 15–26 × 8–11 µm, apex rounded, base truncate, with a distinct basal frill, 1–2 µm long.

SPECIMEN EXAMINED: Florida, Miami Dade Co., NORTH MIAMI, Enchanted Forest Elaine Gordon Park, on rachides and petioles of dead leaf of *Sabal palmetto* (Walter) Lodd. ex Schult., VI. 30. 2007, coll. G. Delgado (BPI 878836).

The presence of (1–)2-euseptate, broadly ellipsoidal to cylindrical conidia, with the upper two cells brown, the basal cell paler and a distinct basal frill, distinguish *E. fallacia* from other similar *Endophragmiella* B. Sutton species (Kirk 1981). Wu & Zhuang (2005) cited two specimens on dead branches of *Betula pendula* Roth and *Quercus robur* L. from China with 2–3-euseptate conidia. The Florida collection is consistent with the holotype from U.K in having mostly 2, sometimes 1-euseptate conidia, but they are slightly narrower compared with the original specimen, (9–)10–12(–13) µm wide. This is the first record of *E. fallacia* in North America and the third time is recorded worldwide, previously known only from U.K. and China.

Gliomastix fusigera (Berk. & Broome) C.H. Dickinson, Mycol. Pap. 115: 7, 1968. FIGS. 17–18

≡ *Monotospora fusigera* Berk. & Broome, J. Linn. Soc., Bot. 14: 99, 1873.

≡ *Acremonium fusigerum* (Berk. & Broome) W. Gams, Cephalosporium-artige Schimmelpilze: 94, 1971.

Conidiophores unbranched, erect or flexuous, hyaline, smooth, 45–79 × 2–3.5 µm, up to 4 µm at base. Conidia ellipsoidal, dark brown to black, verrucose, 14–22 × 5–8 µm.

Specimen examined: Florida, Miami Dade Co., North Miami, Enchanted Forest Elaine Gordon Park, on rachis of dead leaf of *Sabal palmetto* (Walter) Lodd. ex Schult., VI. 30. 2007, coll. G. Delgado (BPI 878844).

G. fusigera apparently has a widespread distribution, mainly in tropical and subtropical areas. It has been previously recorded in Bangladesh, Cuba, Dominican Republic, Hong Kong, Japan, Malaysia, New Caledonia, New Zealand, Philippines, Seychelles, Sri Lanka, Taiwan (Hyde et al. 2002, Mercado et al. 1997, Minter & Perdomo 2006, Herb IMI on-line undated) and now for the first time in USA. The generic concept of *Gliomastix* sensu Dickinson (1968) is applied here to accommodate this fungus with dark, pigmented conidia, instead of the treatment as a section of the genus *Acremonium* Link (Gams 1971).

Henicospora coronata B. Sutton & P.M. Kirk, in Kirk & Sutton, Trans. Br. Mycol. Soc. 75: 249, 1980. Fig. 25

= *Trichocladium elegans* R.F. Castañeda & G.R.W. Arnold, Rev. Jard. Bot. Nac. 6: 52, 1985.

= *Trichocladium singaporense* Tubaki, T.K. Tan & Y. Ogawa, Mycotaxon 46: 438, 1993.

Conidia cylindrical, smooth, pale olivaceous-brown, coronate at the apex, with 3 dark transverse eusepta and 2 hyaline distosepta, 20–27 × 3.5–4.5 µm. Conidial secession rhexolytic.

Specimens examined: Florida, Monroe Co., Key Largo, Key Largo Hammock Botanical State Park, on unidentified dead leaves, IV. 8. 2007, coll. G. Delgado (BPI 878830, 878832).

While first describing *Henicospora coronata*, Kirk & Sutton (1980) recorded three specimens on dead leaves of *Eucalyptus saligna* Sm. and *Eucalyptus* sp. from Hawaii and American Samoa. This is the first record of *H. coronata* for the continental USA.

Monodictys desquamata K. Rodr., Figueras & Guarro, in Rodríguez et al., Nova Hedwigia 72: 203, 2001. Fig. 29

Colonies effuse, black. Conidia muriform, ellipsoidal or subglobose, dark brown, 53–114 × 38–84 µm; superficial cells protruding from the conidial wall, subglobose to irregular, pale brown, 3–7 × 3–7.5 µm.

Specimen examined: Florida, Miami Dade Co., North Miami, Enchanted Forest Elaine Gordon Park, on petiole of dead leaf of *Sabal palmetto* (Walter) Lodd. ex Schult. VI. 30. 2007, coll. G. Delgado (BPI 878841).

M. desquamata is distinct in having dark brown, muriform conidia with conspicuous, subglobose to irregular external cells that easily detach from the conidial wall (Rodríguez et al. 2001). This is the second time this fungus has been recorded worldwide, originally described from a fallen bark of an undetermined tree in Cuba. The Florida collection has conidia larger than those of the type specimen (33–102 × 32–72 µm).

Myrothecium setiramosum R.F. Castañeda, Deuteromycotina de Cuba. Hyphomycetes IV: 10, 1986. FIG. 23

Conidiomata sporodochial, pulvinate, mucous, green to blackish green. Setae cylindrical, straight, hyaline, smooth, dichotomously or irregularly branched at the apex, 95–154 × 2.5–3.5 µm. Conidia fusiform, aseptate, smooth, hyaline or very pale green, 7–10 × 1–1.5 µm, with 0–2 guttules.

SPECIMEN EXAMINED: Florida, Monroe Co., KEY LARGO, John Pennekamp Coral Reef State Park, on unidentified dead leaf, VII. 20. 2007, coll. G. Delgado (BPI 878825).

M. setiramosum is known mainly from tropical countries, including records from Brazil, Cuba, Mexico, Nigeria, Singapore (Castañeda et al. 2002a, Heredia et al. 2006) and now for the first time from the subtropical region of Florida. It is distinguished from other species of *Myrothecium* Tode by the presence of apically branched, hyaline, smooth setae and cylindrical to fusiform conidia. The type specimen, originally described from fallen leaves of *Eugenia glabrata* (Sw.) DC. in Cuba (Castañeda 1986), have larger setae than the present specimen (100–300 µm).

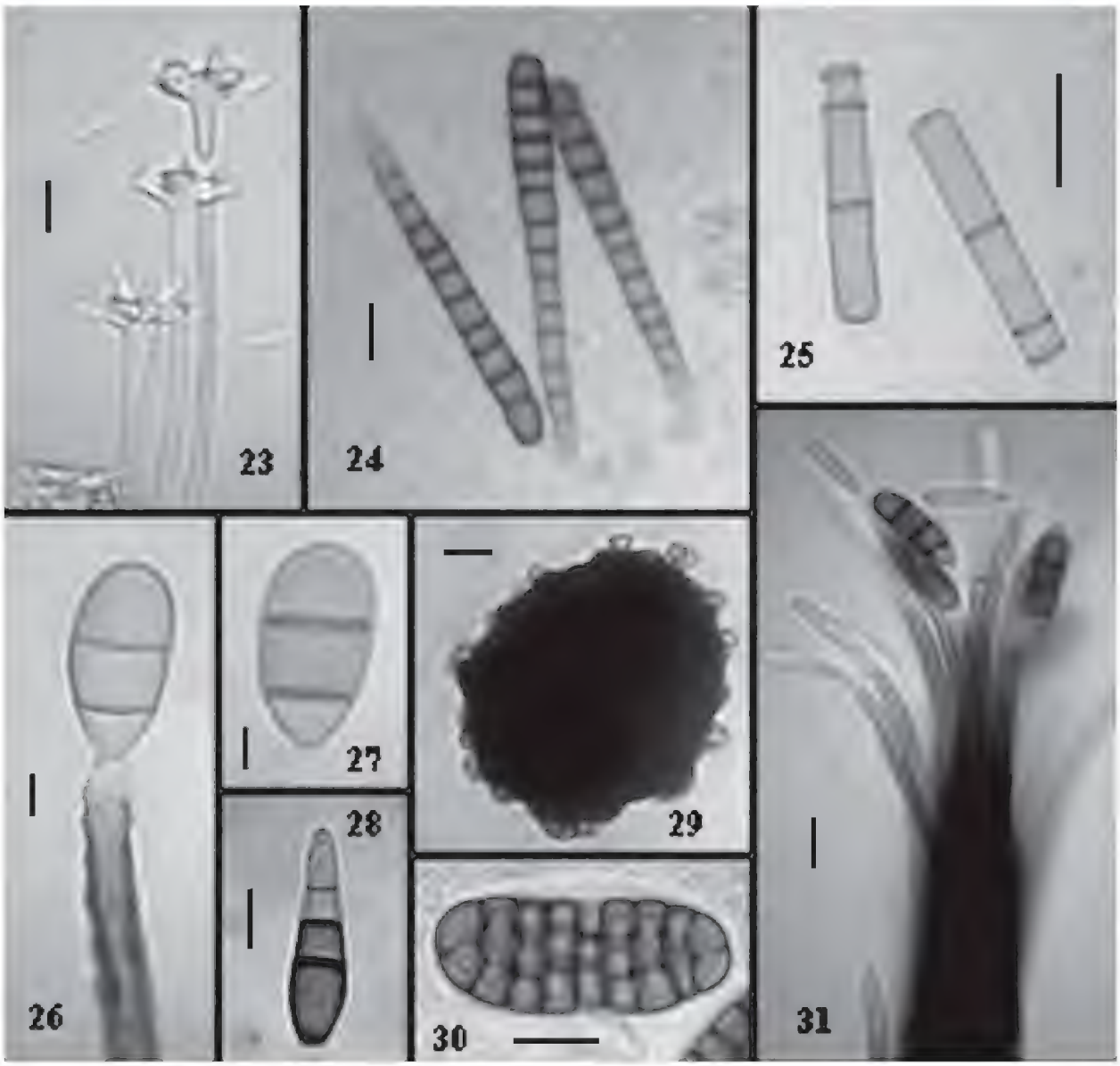
Phaeoisaria triseptata Hol.-Jech., Česká Mykol. 42: 27, 1988. FIG. 31

≡ *Helicomina triseptata* (Hol.-Jech.) R.F. Castañeda, Guarro & Saikawa, Cryptog. Mycol. 23: 16, 2002.

Colonies effuse, hairy, brown. Conidiophores caespitose to synnematous, straight or flexuous, brown, paler toward the apex, synnemata up to 612 µm, 29–55 µm wide at base. Conidiogenous cells polyblastic, integrated, terminal but sometimes intercalary, denticulate, smooth, 22–35 × 2.5–3 µm, denticles cylindrical, 2–3 µm long. Conidia ellipsoidal to clavate, 3-euseptate, straight or slightly curved, brown, the basal cell often paler, 17–22 × 5–7 µm.

SPECIMEN EXAMINED: Florida, Monroe Co., KEY LARGO, Key Largo Hammock Botanical State Park, on rotten dead stems, VII. 20. 2007, coll. G. Delgado (BPI 878835).

Castañeda et al. (2002b) considered this anamorph not congeneric with the accepted concept of *Phaeoisaria* Höhn., and transferred it to *Helicomina* L.S. Olive (Olive 1948). However, Deighton (1976) had previously treated *Helicomina* as a synonym of *Pseudocercospora* Speg., and his judgment has been accepted by others (Pons & Sutton 1988, Zhao et al. 2007). The present collection is the first record of its occurrence in the continental United States, previously found on bark of *Tectona grandis* L. f. from Puerto Rico (Cantrell et al. 2006). The type specimen, which was originally collected on a dead branch of an undetermined tree from Cuba (Holubová-Jechová 1988), has synnemata considerable larger than the Florida specimen (600–1800 µm).



Figs. 23. *Myrothecium setiramosum* (BPI 878825). 23. Setae. **24.** *Sporidesmium pachyanthicola* (BPI 878838). Conidia. **25.** *Henicospora coronata* (BPI 878832). Conidia. **26–27.** *Endophragmiella fallacia* (BPI 878836). 26. Conidiophore and attached conidium. 27. Conidium. **28.** *Sporidesmium angustiobpyriforme* (BPI 878828). Conidium. **29.** *Monodictys desquamata* (BPI 878841). Conidium. **30.** *Coleodictyospora micronesica* (BPI 878822). Conidium. **31.** *Phaeoisaria triseptata* (BPI 878835). Apex of a synnema and conidia. Scale bars: 23–25, 29–31= 10 µm, 26–28 = 5 µm.

Rhexoacrodictys martinii (J.L. Crane & Dumont) G. Delgado, **comb. nov.**

MycoBank MB512671 Figs. 20–22

Basionym: *Acrodictys martinii* J.L. Crane & Dumont, Can. J. Bot. 53: 846, 1975.

≡ *Junewangia martinii* (J.L. Crane & Dumont) W.A. Baker & Morgan-Jones, Mycotaxon 81: 310, 2002.

Conidiophores cylindrical, straight or flexuous, brown, paler toward the apex, 42–116 × 3–4 µm, 5–7 µm wide at the base, with 0–2 percurrent proliferations. Conidia globose, subglobose or broadly ellipsoidal, pale brown to brown, cruciately septate but sometimes with a few transverse, longitudinal or oblique septa, 11–16 µm diam, conidial secession rhexolytic.

Specimen examined: Florida, Miami Dade Co., North Miami, Enchanted Forest Elaine Gordon Park, on rachides of dead leaf of *Sabal palmetto* (Walter) Lodd. ex Schult., IX.22.2007, coll. G. Delgado (BPI 878843).

This fungus was originally described as *Acrodictys martinii* on rotten bark and wood from Puerto Rico (Crane & Dumont 1975) and is first recorded here for the continental USA. It was characterized then by having globose, mostly cruciately septate conidia and cylindrical conidiophores, 116–522 µm long, 8.9–11 µm wide at base. Baker et al. (2002a) transferred it later to *Junewangia* W.A. Baker & Morgan-Jones, a genus segregated from *Acrodictys* M.B. Ellis to include species with percurrent proliferating conidiophores, cylindrical or narrowly cuneate conidiogenous cells and oval, subspherical to almost spherical conidia seceding schizolytically, with a truncate, protuberant basal cell. However, a rhexolytic detachment process apparently occurs in this fungus instead of a schizolytic secession. Most conidia bear a distinct marginal frill derived from the upper portion of the conidiophores, or in very few cases, a short, terminal conidiophore cell is attached. This feature is typical of *Rhexoacrodictys* W.A. Baker & Morgan-Jones, another genus segregated from *Acrodictys* (Baker et al. 2002b), and therefore a new combination is proposed above. Matsushima (1993) recorded a specimen on decaying twigs of broad-leaved tree in Peru, and illustrated a similar disarticulation process. The specimen studied here has shorter conidiophores compared with the holotype from Puerto Rico, which are considerable longer and probably extreme (up to 522 µm), while those of the Peruvian specimen are also shorter (25–50 µm). Whitton et al. (2000) described a close species, *J. lamma* (Whitton et al.) W.A. Baker & Morgan-Jones (≡ *A. lamma* Whitton et al.), with slightly different conidial septation and shorter conidiophores (14–57 × 2.5–4 µm), considering possible they were both the same taxon. However, the conidia of *J. lamma* bear a persistent, pale brown, protruding, cylindrical basal cell, 3.2–5 µm diam., apparently seceding schizolytically, and consequently it is satisfactorily placed in *Junewangia* as a separated taxon.

Sporidesmium angustiobpyriforme Matsush., Matsush. Mycol. Mem. 7: 67, 1993. Fig. 28

Conidiophores solitary or in groups, simple, cylindrical, straight or slightly flexuous, smooth, brown, 35–86 × 3–4 µm, 5–6 µm at base, with 0–2 cylindrical to lageniform, light brown to brown percurrent proliferations, 10–21 × 3–4 µm. Conidia narrowly obclavate, (2–)3(–4)-euseptate, brown, apical cells paler, 12–23 × 4–5 µm.

Specimen examined: Florida, Monroe Co., Key Largo, John Pennekamp Coral Reef State Park, on unidentified dead twigs, VII. 20. 2007, coll. G. Delgado (BPI 878828).

S. angustiobpyriforme was initially described on a rotten petiole of unidentified *Arecaceae* in Peru (Matsushima 1993), and later on dead branches of woody plants in China (Wu & Zhuang 2005). The Florida collection is the third time the fungus is recorded worldwide and its first record in North America.

Sporidesmium pachyanthicola R.F. Castañeda & W.B. Kendr., University of Waterloo Biol. Ser. 33: 45, 1990. Fig. 24

Conidiophores cylindrical, straight or slightly flexuous, brown, 1–7-septate, 14–34 × 4–5 µm, up to 6 µm at base, without percurrent proliferations. Conidia narrowly obclavate or subcylindrical, 6–31-euseptate, brown, becoming paler toward the apex, 32–172 × 3–5 µm, base truncate, apex rounded, basal cell conico-truncate.

Specimens examined: Florida, Miami Dade Co., North Miami, Enchanted Forest Elaine Gordon Park, on rachides and petiole of dead leaves of *Sabal palmetto* (Walter) Lodd. ex Schult., VI. 30. 2007, IX.22.2007, coll. G. Delgado (BPI 878836, 878838, 878841, 878843); Florida, Monroe Co., Key Largo, John Pennekamp Coral Reef State Park, on unidentified dead bark, VII. 20. 2007, coll. G. Delgado (BPI 878824).

Since its original description from dead leaves of *Pachyanthus poiretii* Griseb. in Cuba (Castaneda & Kendrick 1990), *S. pachyanthicola* has been recorded also on dead branches of *Eucalyptus* sp. in China (Wu & Zhuang 2005) and now for the first time in North America. The Florida specimens have larger conidia and shorter conidiophores compared with the holotype from Cuba (conidia 50–140 µm long, conidiophores 30–75 µm tall).

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